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EXAMINER	
MALKOWSKI, KENNETH J	

ART UNIT	PAPER NUMBER
2633	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/820,628	ONO ET AL.	
	Examiner	Art Unit	
	Kenneth J. Malkowski	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/23/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 10 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 10, the final four lines of claim 10 are unclear, "and said current, which is generated by said light receiving unit when said optical communication data indicates L logic, from said current value indicating said magnitude of said current generated by said light receiving unit." In the preceding quote it is unclear what is being done to said current in relation to said magnitude of said current. For the purposes of examination it will be assumed that claim 10 was meant to read, "and subtracting said current, which is generated by said light receiving unit when said optical communication data indicates L logic, from said current value indicating said magnitude of said current generated by said light receiving unit." Appropriate correction is required.

With respect to claim 12, the final four lines of claim 12 are unclear, "and said current, which is generated by said light receiving unit when said optical communication data indicates L logic, to a value of said reference current." In the preceding quote it is unclear what is being done to said current in relation to said value of said reference current. For the purposes of examination it will be assumed that claim 12 was meant to read "and adding said current, which is generated by said light receiving unit when said

optical communication data indicates L logic, to a value of said reference current."

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 5-6 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,467,192 to Velo et al.

With respect to claim 1, Velo discloses a data transmission apparatus for performing data communication based on optical transmission, comprising: a transmitting unit for converting and sending electric communication data, which is to be transmitted, into optical communication data (Velo discloses an optical receiver (Figure 1) within an optical communication system (column 1 lines 17-20) wherein the optical receiver is connected to an optical fiber (column 1 lines 17-20). In any optical communication system a transmitting unit which sends electric data converted to optical data must necessarily be included); a photoelectric conversion circuit for receiving said optical communication data and converting said received optical communication data into said electric communication data (Column 2 lines 39-41 (as photocurrent increases, current through photodiode (1) increases (1, Fig 1); and a variable setting unit for setting said photoelectric conversion circuit to generate predetermined electric communication data in response to a level of predetermined optical communication data (column 2 lines

39-56 (for a predetermined optical input level a constant amplification of the photodiode (1) at different temperatures is required)) (column 3 lines 3-10 (current generated by photodiode is information current (*i*); offset is created by summing direct current I produced by current source (40)).

With respect to claim 5, Velo discloses a data transmission apparatus as claimed in claim 1, wherein said variable setting unit sets said photoelectric conversion circuit (column 2 lines 39-56 (for a predetermined optical input level a constant amplification of the photodiode (1) at different temperatures is required)) based on a transmission delay time of said optical communication data and electric communication data between said corresponding transmitting unit and photoelectric conversion circuit. On page 16 paragraph 56 of applicants' specification, applicant states that since the variable current supply is provided in the receiving unit, the skew ("deviation of delay time in transmitting unit") between the channels can be reduced and a comparator can detect logic levels with high precision. Velo also discloses a variable current supply (column 6 lines 6-24 and 28-34) contained in the receiving unit (Fig 3) and a comparator (100, Fig 3) that can detect logic levels with high precision (column 6 lines 1-8). Possessing a circuitry as described by applicant therefore inherently includes the ability to base said variable setting unit on a skew with respect to transmission delay time as no additional components were disclosed other than said variable current supply in order to compensate for said skew.

With respect to claim 6, Velo discloses a data transmission apparatus as claimed in claim 5, wherein said variable setting unit sets said photoelectric conversion circuit

further based on attenuation of said optical communication data with regard to said corresponding optical waveguide (column 1 lines 15-31 (measure attenuation of connection; measure any change in optical input level to have the possibility of taking corrective measures)).

With respect to claim 15, Velo discloses a photoelectric conversion circuit for receiving light and converting said received light into electricity, comprising: a photodiode for generating a current based on said received light data (Column 2 lines 39-41 (as photocurrent increases, current through photodiode (1) increases (1, Fig 1); and a variable current supply (40, Fig 1)(column 2 lines 11-17) for generating a current to offset said current generated by said photodiode (column 3 lines 3-10 (current generated by photodiode is information current (i); offset is created by summing direct current I produced by current source (40)).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,381,054 to Okayasu et al.

With respect to claim 1, Okayasu discloses a data transmission apparatus (column 21 lines 33-43 (optical signal transmission system))(Fig 1 (wherein optical data is transmitted from transmitter (T) to receiver (R) via optical fiber (6))) for performing data communication (column 14 lines 6-11 (data transmission)) based on optical transmission, comprising: a transmitting unit (T, Fig 1) for converting and sending electric communication data, which is to be transmitted, into optical communication data (column 2 lines 28-39)((Fig 23, electric data from driving circuit (104) is converted to optical data at (105) and sent to optical transmission line (109))); a photoelectric conversion circuit for receiving said optical communication data and converting said received optical communication data into said electric communication data (column 2 lines 40-54)(Fig 23, 106,107); and a variable setting unit (110A-C, 111 A-B, Fig 10)(A-D Fig 10 (wherein the various current values are set based on circuitry disclosed in Fig 10))(columns 27-28 lines 62-67 and 1-5) for setting said photoelectric conversion circuit (107, Fig 3) to generate predetermined electric communication data in response to a predetermined level of data (column 27 lines 40-42 (H, L levels))(column 28 lines 39-54)(columns 28-29 lines 55-67 and 1-19)(A-C, Fig 13 (wherein the correlation between the injected current (Ia, Ib, Ic) from the variable setting unit and the electric data at the receiver side is depicted)). Although the variable setting unit methodology as disclosed by Okayasu is located on the transmitter side and uses a control voltage on the transmitter side as opposed to the receiver side, at the time of the invention it would have been obvious to a person of ordinary skill in the art to implement the variable setting unit methodology to receive side rather than the transmitter side, wherein, the

control signal used to operate the variable setting circuitry would be signal Ip as shown in Figure 12 and the resulting signal from said variable setting unit would be applied to comparator 107C in Figure 12 rather than LD in Fig 10. The motivation for doing so would have been cost savings on a redundant use of multiple variable setting units within transmitter-receiver systems wherein there are several transmitters and only one receiver.

With respect to claim 2, Okayasu discloses a data transmission apparatus as claimed in claim 1, wherein said photoelectric conversion circuit comprises: a light receiving unit (106, Fig 23) for generating a current based on said received optical communication data; and a signal generating unit for generating said electric signal based on said current generated by said light receiving unit (Column 2 lines 40-54), and said variable setting unit comprises (110A-C, 111 A-B, Fig 10)(A-D Fig 10 (wherein the various current values are set based on circuitry disclosed in Fig 10))(columns 27-28 lines 62-67 and 1-5): a variable current supply for setting said photoelectric conversion circuit by subtracting a predetermined current value from a current value indicating magnitude of said current generated by said light receiving unit. (D, Fig 11) Depicts an Ib+Ic current level followed by an Ic current level wherein current Ib has been subtracted by turning off switches 111a and 111b (column 27 lines 40-43). The magnitude of current resulting form said subtraction/addition of injected current is supplied to LD as shown in Fig 10 and corresponds to the optical output level (column 3 lines 61-67) that is transmitted to the receiver. Subsequently, the light receiving unit at the receiver (PD,

Fig 12) generates said magnitude of current supplied by said variable setting unit (as shown in Fig 13(A))(columns 28-29 lines 55-67 and 1-19).

With respect to claim 3, Okayasu discloses a data transmission apparatus as claimed in claim 1, wherein said photoelectric conversion circuit (107, Fig 12) comprises; a light receiving unit for generating a current based on said received optical communication data (PD, Fig 12)(as shown in Fig 13(A))(columns 28-29 lines 55-67 and 1-19); and a comparator for comparing a current value (column 11 lines 39-48 (voltage comparator), which indicates magnitude (column 3 lines 61-67 establish relation between optical intensity levels and current magnitude) of said current generated by said light receiving unit, with a reference current (bias current)(column 11 lines 39-48 (DC voltage corresponding to DC bias current is applied to comparator as a reference voltage)) and generating said electric communication data (column 11 lines 45-48 (received signal is outputted from voltage comparator)); and said variable setting unit (110A-C, 111 A-B, Fig 10)(A-D Fig 10 (wherein the various current values are set based on circuitry disclosed in Fig 10))(columns 27-28 lines 62-67 and 1-5) comprises: a variable current supply for setting said photoelectric conversion circuit by adding a predetermined current value (column 28 lines 10-14 (Ia+Ib+Ic is positive about bias current))(column 27 lines 40-43 (adding predetermined value (Ia) is created by turning ON switches 111a and 111b)) to said reference current (bias current)(column 28 lines 39-42 (bias current is Ib+Ic)).

With respect to claim 4, Okayasu discloses a data transmission apparatus as claimed in claim 1 further comprising: a plurality of said transmitting units (Fig 1 wherein

the "transmitting signal" is split into two separate transmission units located on the transmitting side, one unit in solid line, the second unit in dashed line); a plurality of optical waveguides (Fig 1 wherein optical fiber (6) appears twice, one fiber in solid line, the second fiber in dashed line) for propagating pieces of said optical communication data sent from said transmitting units respectively (column 17 lines 61-67 reveal Fig 1 is an optical signal transmission system); and a plurality of said photoelectric conversion circuits (Fig 4 14a-b) in response to said transmitting units respectively (Fig 4 12a-b), wherein said variable setting units (110A-C, 111 A-B, Fig 10)(A-D Fig 10 (wherein the various current values are set based on circuitry disclosed in Fig 10))(columns 27-28 lines 62-67 and 1-5) for setting said photoelectric conversion circuit (107, Fig 3) to generate predetermined electric communication data in response to a predetermined level of data (column 27 lines 40-42 (H, L levels))(column 28 lines 39-54)(columns 28-29 lines 55-67 and 1-19)(A-C, Fig 13 (wherein the correlation between the injected current (Ia, Ib, Ic) from the variable setting unit and the electric data at the receiver side is depicted)). Although the variable setting unit methodology as disclosed by Okayasu is located on the transmitter side and uses a control voltage on the transmitter side as opposed to the receiver side, at the time of the invention it would have been obvious to a person of ordinary skill in the art to implement the variable setting unit methodology to receive side rather than the transmitter side, wherein, the control signal used to operate the variable setting circuitry would be signal Ip as shown in Figure 12 and the resulting signal from said variable setting unit would be applied to comparator 107C in Figure 12 rather than LD in Fig 10. The motivation for doing so would have been cost savings on a

redundant use of multiple variable setting units within transmitter-receiver systems wherein there are several transmitters and only one receiver.

With respect to claim 5, Okayasu discloses a data transmission apparatus as claimed in claim 1, wherein said variable setting unit (circuit displayed in Fig 32)(Fig 16,18) sets said photoelectric conversion circuit based on a transmission delay time (delay circuits 302, 303 in Fig 32 set transmission delay times) of said optical communication data and electric communication data between said corresponding transmitting unit and photoelectric conversion circuit (Fig 2 (a-e)(column 16 lines 25-35 (transmitted pulse signal experiences delayed pulse show in (b) is used as a timing signal at the receiving side wherein the delay time can be a fixed and known value). Furthermore the photoelectric conversion circuit as taught by Okayasu discloses a delay compensation circuit (352a-b, Fig 9) for adjusting received delays (column 25 lines 49-61).

With respect to claim 6-8, Okayasu discloses a data transmission apparatus as claimed in claim 5, wherein said variable setting unit sets said photoelectric conversion circuit further based on attenuation/efficiency of said optical communication data with regard to said corresponding optical waveguide. Applicant states that ability of variable setting unit to function based on attenuation/efficiency of optical data is enabled by said variable setting units ability to perform current subtraction (applicants specification, page 16, paragraph 55) as stated in claim 2 with no stated modifications to said subtracting function. Therefore, the variable setting unit as disclosed by Okayasu can perform said setting related to attenuation based on its demonstrated subtraction

function (D, Fig 11) Depicts an Ib+Ic current level followed by an Ic current level wherein current Ib has been subtracted by turning off switches 111a and 111b (column 27 lines 40-43).

With respect to claims 9 and 11, Okayasu discloses a data transmission apparatus as claimed in claim 2, wherein said optical communication data is digital data (column 2 liens 6-7 (binary digital optical pulses)), and said variable current supply subtracts a current value (column 28 lines 10-14 (Ic is negative about bias current))(column 27 lines 40-43 (subtracting a predetermined value (Ib) is created by turning OFF switches 111a and 111b, a logic low level)) or adds a current value (column 28 lines 10-14 (Ia+Ib+Ic is positive about bias current))(column 27 lines 40-43 (adding predetermined value (Ia) is created by turning ON switches 111a and 111b)) to said reference current (bias current)(column 28 lines 39-42 (bias current is Ib+Ic))., which is substantially half said current generated by said light receiving unit (Fig 13a shows "received light" logic levels based on variable current settings)(column 12 lines 6-18 (the first current waveform has an amplitude twice as large as second waveform; the second waveform having a negative relationship to said digital input signal) when said optical communication data indicates H/L logic, from said current value generated by said light receiving unit (Fig 13c shows resulting logic voltage level based on received light). Adding/subtracting current can lead to a logic low state or a logic high state in the light-receiving unit as by using inversion circuitry that is notoriously well known in the art. Therefore, subtracting or adding current value can lead to logic low or logic high states

using the invention as disclosed by Okayasu and conventions well known in the art at the time of the invention.

With respect to claims 10 and 12 Okayasu discloses a data transmission apparatus as claimed in claim 2, wherein said optical communication data is digital data, and said variable current supply subtracts (column 28 lines 10-14 (Ic is negative about bias current))(column 27 lines 40-43 (subtracting a predetermined value (Ib) is created by turning OFF switches 111a and 111b, a logic low level) or adds (column 28 lines 10-14 (Ia+Ib+Ic is positive about bias current))(column 27 lines 40-43 (adding predetermined value (Ia) is created by turning ON switches 111a and 111b)) to said reference current (bias current)(column 28 lines 39-42 (bias current is Ib+Ic)) a substantially average current value of said current (column 30 lines 14-20 (current of waveform goes positive symmetrically with respect to the mean current, without changing men current value)), which is generated by said light receiving unit (Fig 13a shows "received light" logic levels based on variable current settings) when said optical communication data indicates H logic (Fig 13c shows resulting H logic voltage level based on received light), and *[adds/subtracts]* said current, which is generated by said light receiving unit (Fig 13a shows "received light" logic levels based on variable current settings) when said optical communication data indicates L logic (Fig 13c shows resulting L logic voltage level based on received light), to/from said current value indicating said magnitude/reference value of said current generated by said light receiving unit (Ic +Ib). Adding/subtracting current can lead to a logic low state or a logic high state in the light-receiving unit as by using inversion circuitry that is notoriously well

known in the art. Therefore, subtracting or adding current value can lead to logic low or logic high states using the invention as disclosed by Okayasu and conventions well known in the art at the time of the invention.

With respect to claims 13, Okayasu discloses a data transmission apparatus as claimed in one of claims 1 to 10, wherein said transmitting unit comprises: a laser diode for generating said optical communication data based on said electric communication data (Figure 10 LD, light emitting device); and a bias current supply for supplying a bias current larger than a laser oscillation threshold current of said laser diode to said laser diode (column 13 lines 35-46 (bias current has a value larger than the threshold value that provides a light emission starting point of the light emitting device)).

With respect to claim 14, Okayasu discloses a test apparatus for testing an electronic device (column 13 lines 5-19 (semiconductor testing apparatus)), comprising; a pattern generating unit for generating a test signal to test said electronic device (column 3 lines 21-24); a waveform adjusting unit for adjusting said test signal (Applicant states on page 7 paragraph 30 of specification that the waveform adjusting unit may supply the test signal adjusted at desired timing) (Figure 3(15a) (discrimination circuit) wherein delay/time constant adjustment circuit adjusts timing of test signal)(Figure 4 shows discrimination circuit used in semiconductor device tester); a test head for contacting said electronic device (column 3 lines 21-24); a data transmission apparatus for transmitting data between said waveform adjusting unit and said test head (column 3 lines 16-21 (optical transmission system to semiconductor device tester)); and a judging unit for judging quality of said electronic device based on an output signal

outputted by said electronic device in response to said test signal (column 1 lines 20-28 (testing apparatus... for testing and sorts out tested semiconductor devices based on test results)), wherein said data transmission apparatus comprises: a transmitting unit (T, Fig 1) for converting and sending said test signal into optical communication data (column 2 lines 28-39)((Fig 23, electric data from driving circuit (104) is converted to optical data at (105) and sent to optical transmission line (109)))(Fig 4 shows transmission and reception in the tester body/ test head setting); a photoelectric conversion circuit for receiving said optical communication data and converting said received optical communication data into said test signal(column 2 lines 40-54)(Fig 23, 106,107)(Fig 4 shows transmission and reception in the tester body/ test head setting); and a variable setting unit for setting said photoelectric conversion circuit to generate a predetermined test signal in response to a level of predetermined optical communication data. (110A-C, 111 A-B, Fig 10)(A-D Fig 10 (wherein the various current values are set based on circuitry disclosed in Fig 10))(columns 27-28 lines 62-67 and 1-5) for setting said photoelectric conversion circuit (107, Fig 3) to generate test signal in response to a predetermined level of data (column 27 lines 40-42 (H, L levels))(column 28 lines 39-54)(columns 28-29 lines 55-67 and 1-19)(A-C, Fig 13 (wherein the correlation between the injected current (Ia, Ib, Ic) from the variable setting unit and the electric data at the receiver side is depicted)). Although the variable setting unit methodology as disclosed by Okayasu is located on the transmitter side and uses a control voltage on the transmitter side as opposed to the receiver side, at the time of the invention it would have been obvious to a person of ordinary skill in the art to implement the variable

setting unit methodology to receive side rather than the transmitter side, wherein, the control signal used to operate the variable setting circuitry would be signal Ip as shown in Figure 12 and the resulting signal from said variable setting unit would be applied to comparator 107C in Figure 12 rather than LD in Fig 10. The motivation for doing so would have been cost savings on a redundant use of multiple variable setting units within transmitter-receiver systems wherein there are several transmitters and only one receiver.

With respect to claim 15, Okayasu discloses a photoelectric conversion circuit for receiving light and converting said received light into electricity, comprising: a photodiode for generating a current based on said received light (PD, Fig 12)(as shown in Fig 13(A))(columns 28-29 lines 55-67 and 1-19); and a variable current supply for generating a current to offset said current generated by said photodiode (column 27 lines 28-39 (wherein the current generated by said photodiode is always at least current Ic))(Figures 10 and 11 show variable current supply and resulting current waveforms (waveforms Ib+Ic and Ia+Ib+Ic) which offset said current which is always emitted by LD and generated by PD (Ic))(Resultant current waveforms from PD are shown in Fig 13a).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of the art with respect to data transmission/ photoelectric conversion and testing apparatuses in general:

U.S. Patent No. 6,684,032 is cited to show an optical receiver with a PD, a constant current to the emitter, current magnitude and offset currents for digital data

U.S. Patent No. RE 36,491 is cited to show a transceiver with O/E E/O conversion efficiency, control signal, bias current and variable current.

U.S. Patent No. 4,945,541 is cited to show an a transmission method for controlling bias current, varying bias current, and a comparator

U.S. Patent No. 6,907,702 is cited to show O/E conversion, a PD, a receiver with conversion efficiency considerations and variable resistance for a shifting current

U.S. Patent No. 4,467,192 is cited to show an optical receiver having a variable current source.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth J. Malkowski whose telephone number is (571) 272-5505. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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